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END TB

WORLD TB DAY MARCH 24

It's time to switch off the TB on World tuberculosis day

People mistakenly believe tuberculosis (TB) to be a disease of the past. But if we look closer, we will find that people suffering from TB are part of our personal, professional and social networks. It is a scenario in which very few are left untouched or unaffected in India.

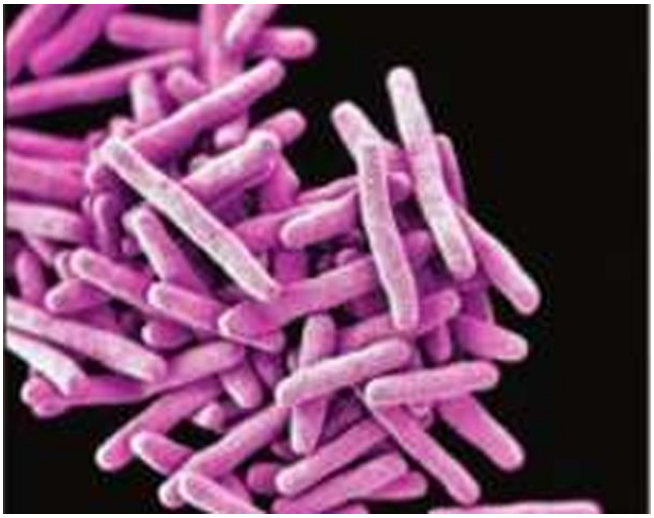
About one-third of the world's population and about half of India's adult population has latent TB. This means people have been infected by the bacteria but are not (yet) ill with the disease and cannot transmit it.

TB is spread via aerosol infection. The bacilli enter the body through the lungs, usually establishing a pulmonary infection that can flare up much later when the conditions are right. If left untreated, a person with active disease can infect up to 15 people simply by coughing or sneezing.

The BCG (Bacillus Calmette-Guérin) vaccine provides protection against severe TB disease in infants. But it is ineffective against adolescent and adult pulmonary TB. Only one in 10 Indians infected will develop TB disease in their lifetime. But this risk is much higher at a very young and old age and when the immune system is weak.

India accounts for 18% of the world's population and 27% of the global TB burden. So, 2.8 million of the 10.4 million new TB cases in 2016 occurred in India, according to the WHO Global TB Report, which revised and raised its global estimates in 2016 using improved surveillance data. Deaths due to TB stood at 480,000 in 2015. This, despite the government providing free diagnosis and treatment services. Around nine million people were screened for TB and 1.4 million patients were put on treatment by GoI in 2015.

The problem is further exacerbated by the emergence of multi-drug-resistant TB (MDR-TB). India is estimated to have the highest number of MDRTB and second-highest number of HIV-co-infected TB patients. Growing drug resistance is slowing cure rates.



Don't spare the rods

The MDR-TB treatment success rate globally was an abysmal 52% in 2013. About 2.5% of all new TB cases in India are resistant to rifampicin, or to both rifampicin and isoniazid, the two most commonly used anti-TB drugs. In end-2015, India had 79,000 cases of MDRTB, 11% more than in 2014.

Worldwide, the rate of decline in TB incidence remained at only 1.5% in 2014-15. However, to achieve the Sustainable Development Goals (SDGs) and End-TB strategy targets, India needs to have a decline in TB incidence by about 15-20% a year. For this, we need better tools that incorporate the latest scientific breakthroughs.

The key immediate priorities we must pursue are:

1. Introduce newer rapid diagnostics and point-of-care tests for TB.
2. Introduce new drugs with shorter, simpler and more effective drug combinations, especially for MDR-TB.
3. Introduce newer vaccines.
4. Test and scale-up innovative implementation models to improve patient outcomes and reduce the economic burden of TB.
5. Strengthen ICT-based programme management and surveillance.
6. Increase awareness and engage communities to reduce stigma.

Energised by the recent successes with polio and maternal and neonatal tetanus elimination, India has agreed to fast-track TB elimination. There is strong political commitment to tackle TB head-on and finance minister Arun Jaitley, while presenting Budget 2017, spoke of the government's action plan to eliminate TB by 2025.

The groundwork is being laid out as GoI is gearing up to implement a well defined national strategic plan to eliminate TB. Partnership forms a key pillar of this strategy. To ramp up India's response to TB elimination, the India TB Research and Development Corporation has been formed to align all efforts in TB care and prevention. It is a coalition of diverse stakeholders, who will adopt and implement a fresh approach to TB elimination.

The Industrial Toxicology Research Centre has already formed strong partnerships with the ministry of health and family welfare, the department of biotechnology, the department of science and technology, the Council of Scientific and Industrial Research, corporate foundations and several national and international organisations. The science to treat TB is available.

What's required is a new approach of working with strong and diverse partners. Partners bring in a diversity of thought, an eclectic mix of ideas that can change our whole approach to TB.

Areas that need strengthening are private sector engagement, use of technology and mobile health, patient support and incentives, strong advocacy, communication and community outreach. TB presents a tough social and scientific challenge. We must join hands to eliminate the menace.

(Dr. Soumya Swaminathan)

March 24, 2017, 1:32 AM IST Economic Times in ET Commentary | India | ET

Inter-agency coordination group on antimicrobial resistance (AMR)

UN Secretary-General António Guterres has announced the establishment and membership of an ad hoc inter-agency coordination group on antimicrobial resistance (AMR). Amina Mohammed, UN Deputy Secretary-General and co-chair of the group, said AMR poses a "formidable threat" in the attainment of the Sustainable Development Goals (SDGs), particularly in developing countries, noting that if "superbugs" are not stopped, SDG targets will likely not be met by 2030.

AMR describes changes to microorganisms, such as bacteria, fungi, viruses and parasites, due to exposure to antimicrobial drugs, such as antibiotics, antifungals, antivirals, antimalarials and anthelmintics. Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs." The changes to microorganisms can make medicines ineffective and allow infections to persist in the body, which in turn increases the risk of spread to others.

The establishment of the AMR group follows on the UN General Assembly's (UNGA) September 2016 adoption of a political declaration on AMR. The declaration requests the UN Secretary-General to establish, in consultation with the World Health Organization (WHO), the Food and Agriculture Organization of the UN (FAO) and the World Organization for Animal Health (OIE), an ad hoc inter-agency coordination group to be co-chaired by the Executive Office of the UN Secretary-General and WHO, drawing on expertise from relevant stakeholders "where necessary." The declaration mandates the group to provide practical guidance for approaches needed to ensure sustained effective global action to address AMR.

The coordination group, announced on 17 March 2017, is co-chaired by Mohammed and by Margaret Chan, WHO Director-General. Members of the group are: Hanan Balkhy, Ministry of National Guard Health Affairs, Saudi Arabia; Jarbas Barbosa da Silva, National Health Surveillance Agency (ANVISA), Brazil; Otto Cars, Uppsala University, Sweden; Junshi Chen, China National Center for Food Safety Risk Assessment; Dame Sally Davies, Department of Health, UK; Lyalya Gabbasova, Ministry of Health, Russian Federation; Martha Gyansa-Lutterod, Ministry of Health, Ghana; Jaana Husu-Kallio, Ministry of Agriculture and Forestry, Finland; Martin Khor, South Centre, Switzerland; Marco Marzano de Marinis, World Farmers Organization, Italy; Gérard Moulin, National Agency for Veterinary Medicinal Products and French Agency for Food, Environmental and Occupational Health & Safety; Donald Prater, US Food and Drug Administration; Susana Ramirez Hita, University Andina Simon Bolivar, Ecuador; Soumya Swaminathan, Indian Council of Medical Research; and Naoko Yamamoto, Ministry of Health, Labour and Welfare, Japan. According to the UN Secretary-General's announcement, the composition of expert members reflects "strong gender parity."

The group also is expected to include officials from: the FAO; the Global Fund to fight AIDS, Tuberculosis and Malaria; the Organization for Economic Co-operation and Development (OECD); OIE; the Joint UN Programme on HIV/AIDS (UNAIDS); the UN Environment Programme; the UN Children's Fund (UNICEF); the World Bank; the World Customs Organization (WCO); WHO; the World Intellectual Property Organization (WIPO); and the World Trade Organization (WTO).

Antimicrobial resistance is already prolonging illness worldwide, said Margaret Chan

Guterres said the group will convene its first meeting "within the next few weeks," and it should produce a report to the UN Secretary-General during the UNGA's 73rd session, discussing the implementation of the declaration and any further developments and recommendations. Chan, observing that AMR is already prolonging illness worldwide, said the group will get to work "right away" to support governments across the world and advise on the "use and abuse" of antibiotics for people and livestock.

In an interview with UN News on 16 March 2017, Mohammed said AMR is a multisectoral problem as it impacts clean water, sustainable food production and elimination of poverty, among other issues. The creation of the group shows how seriously UN Member States are taking the threat, she said, stressing that many UN agencies, international organizations, NGOs, civil society groups and the general public will need to engage in the fight against AMR.

The AMR political declaration was agreed by UN Member States on 21 September 2016, at a high-level meeting on AMR convened by the UNGA President Peter Thomson, during which UN Member States called for action, and outlined initiatives carried out nationally to address the issue. The UNGA then adopted the declaration through resolution A/RES/71/3.

(UN Secretary-General's announcement, 17 March2017)

N-acetyltransferase gene polymorphisms & plasma isoniazid concentrations in patients with tuberculosis

Isoniazid (INH) continues to be the most widely used chemotherapeutic agent for the treatment of tuberculosis (TB). The primary step in the metabolism of INH is acetylation, catalyzed by the enzyme, N-acetyltransferase (NAT2), resulting in the formation of acetyl INH. NAT2 enzyme displays genetic polymorphism, and its activity is expressed at highly variable levels.

Several studies have shown that human subjects show a wide degree of variation in their capacity to acetylate INH to acetyl INH in spite of receiving similar prescribed INH doses1. Individuals can be distinctly characterized phenotypically as being either slow or rapid acetylators (the concentration of the enzyme being higher in rapid acetylators)1. Molecular techniques that are now available permit identification of three genotypes: rapid, intermediate and slow. Slow acetylators are known to be at a risk for most drug- induced toxicities, while rapid acetylators are likely to experience decreased therapeutic efficacy. It has been suggested that NAT2 genotyping before therapy could be useful to predict adverse reactions and make dose adjustments, if necessary[2,3].

The acetylator gene frequency for slow allele differs widely across ethnic groups and countries: 10 per cent in people from the mongoloid race such as the Eskimos, Japanese and Chinese, 90 per cent in the Middle East, 60 per cent in the Negroid and Caucasian populations and 72 per cent in the USA4. Singh et al5 have shown high variation in NAT2 gene frequencies from different regions in India. Zabost et al6 explored the relationship between NAT2 genotypes and serum concentrations of INH in a Polish population and concluded that determining mutations in the NAT2 gene enabled the identification of the INH acetylator type in patients, and the genotyping results were consistent with the phenotype. The present study was conducted to genotype TB patients from Chennai, Tamil Nadu, India, for NAT2 gene polymorphisms and to compare plasma INH concentrations among the different genotypes.

Material &Methods

A prospective study design was followed, in which adult patients with either pulmonary or extrapulmonary TB receiving anti-TB treatment (ATT) in the Revised National TB Control Programme (RNTCP) treatment centres in Chennai, Tamil Nadu, India, during September 2014 to March 2015 were included. Patients were recruited from the TB units in Pulianthope, Chinthadripet, Basin Bridge, Kodambakkam, Saidapet, Tondiarpet, Sembium and Periyar Nagar. Diagnosis and treatment were according to the RNTCP guidelines7. Patients received either Category I or Category II treatment. Category I treatment consisted of a six-month thrice weekly regimen with rifampicin (RMP), INH, pyrazinamide (PZA) and ethambutol (EMB) for two months, followed by RMP and INH for four months7. Category II treatment consisted of a thrice weekly eight-month regimen with streptomycin, INH, RMP, PZA and EMB for two months, followed by INH, RMP, PZA and EMB for one month, and INH,RMP and EMB for the remaining five months. The drug doses were RMP 450 mg (600 mg for those >60 kg body weight), INH 600 mg, EMB 1200 mg, PZA 1500 mg and streptomycin one gram. Patients were eligible to take part in this study if they met the following criteria, (i) aged 18 yr or above, (ii) body weight not less than 30 kg, (iii) received at least two weeks of ATT regularly, (iv) not very sick or moribund, (v) willing to participate and give informed written consent, and (vi) agreeing to come to the same DOT centre until completion of the study. The study commenced after obtaining approval from the Institutional Ethics Committee of the ICMR-National Institute for Research in Tuberculosis, Chennai.

The sample size was calculated based on the study of Singh et al5, which reported mean (95% confidence interval) two-hour plasma INH concentration of 2.4 µg/ml (1.5-3.4 µg/ml) in fast acetylators and 5.6 µg/ml (4.8-6.4 µg/ml) in slow acetylators. With 95 per cent confidence level, 90 per cent power and assuming the expected true difference to be 1 µg/ml, the sample size was calculated as 323.

Patients who were diagnosed with TB were referred by the medical officers at the TB units. The purpose of the study and procedures were explained to those patients who fulfilled the study criteria. Patients who were willing to participate were recruited after obtaining informed written consent. The study was conducted at the respective TB units after patients had received a minimum of seven doses of ATT. On the study day, the anti-TB drugs were administered under direct supervision and three ml blood was collected at two hours post-dosing. The blood was distributed into heparinized and EDTA vacutainer tubes, the former was used for INH estimation and the latter for extraction of DNA and

genotyping experiment. Blood collected in the heparinized vacutainer tubes was centrifuged immediately and plasma separated. The plasma samples were stored at -20°C until analysis.

Plasma isoniazid (INH) estimation: This was undertaken within a week of sample collection, by high-performance liquid chromatograph (Shimadzu Corporation, Kyoto, Japan) using validated methods8. INH was extracted from plasma using para- hydrobenzaldehyde and trifluoroacetic acid. Analysis was performed using a C8 column, with ultraviolet detector set at 267 nm. The retention time of INH was 5.5 min. The method was highly specific with no interfering peaks at this retention time. The between and within run variations for all the drugs were below 10 per cent and the lower limit of quantification was 0.25 µg/ml. N-acetyltransferase (NAT2) genotyping: Genomic DNA was extracted using QIAamp DNA blood mini kit (Qiagen, Hilden, Germany) and quantitated on Thermo Fisher's NanoDrop 2000 spectrophotometer (NanoDrop Technologies Inc., USA). Six single nucleotide polymorphisms (SNPs, rs1041983, rs1801280, rs1799929, rs1799930, rs1208 and rs1799931) in the NAT2 gene were analyzed using Taqman SNP genotyping assays (Applied Biosystems, USA) in Applied Biosystems 7500 Real-Time PCR System and Sequence Detection Software (SDS) v1.3.1 (Applied Biosystems, USA). The slow, intermediate and rapid NAT2 acetylator phenotypes were determined using NAT2PRED Web server9. This software allows the use of the six polymorphisms in NAT2 to eventually determine the acetylator phenotype.

Statistical analysis: Analysis of data was performed using SPSS, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Data were expressed as median and inter-quartile range (IQR). Marascuillo procedure was carried out to compare proportions. Kruskal–Wallis and Mann–Whitney post hoc tests were performed to study differences in two-hour INH concentrations among the different genotypes; P value was adjusted using the Bonferroni correction method.

Table I. Characteristics of slow, intermediate and rapid acetylators

Variables	Slow acetylators (n=189)	Intermediate acetylators (n=114)	Rapid acetylators (n=23)	Total (n=326)
Age (yr)	37 (24-48)	40 (28.5-50.0)	36 (22-46)	38 (25-49.2)
Sex				
Male	121	79	13	213
Female	68	35	10	113
Body weight (kg)	48 (42-55)	47 (42-55)	48 (42-57)	47 (42-55)
BMI (kg/m^2)	18.3 (16.1-21.3)	18.1 (16.0-20.8)	18.8 (15.8-20.4)	18.2 (16-20.9)
Disease type				
Extrapulmonary	65	38	12	115
Pulmonary	124	76	11	211
Treatment type				
Category 1	163	93	21	277
Category 2	26	21	2	49
INH dose (mg/kg)	12.5 (10.9-14.3)	12.8 (10.9-14.3)	12.5 (10.5-14.3)	12.8 (10.9-14.3)
Sputum smear				
Negative	53	32	5	90
Positive	87	59	10	156
Non-diabetic	164	97	19	280
Diabetic	25	17	4	46
HIV status				
Negative	186	114	22	322
Positive	3	0	1	4
Blood glucose (mg/dl)	97 (84-120)	95.5 (85-125.5)	103 (88-148)	96 (85.8-123.2)
Serum creatinine (mg/dl)	0.7 (0.6-1.0)	0.8 (0.7-1.0)	0.7 (0.6-1.0)	0.7 (0.6-1.0)
AST (U/l)	20 (17-26)	19 (15.5-24.0)	19 (14.8-29.5)	20 (16-25)
ALT (U/l)	14 (10-18.5)	13 (11.0-19.0)	14.5 (11.0-17.0)	14 (11-18)
INH 2nd h	10.2 (6.2-13.1)	8.1 (4.8-11.0)	4.1 (2.4-7.7)	9.0 (5.0-12.0)

Values are presented in median (IQR) and numbers. INH, isoniazid; BMI, body mass index; IQR, inter-quartile range; AST, aspartate transaminase; ALT, alanine transaminase

Table II. Genotype and specific alleles of N-acetyltransferase gene

SNPs	*NAT2* position	Genotype		MAF	HWE	
					χ^2	*P*
rs1041983	282C>T	CC	104 (31.90)	0.44	0.438	0.507
		CT	155 (47.54)			
		TT	67 (20.55)			
rs1801280	341T>C	TT	151 (46.31)	0.32	0.048	0.826
		TC	143 (43.86)			
		CC	32 (9.81)			
rs1799929	481C>T	CC	161 (49.38)	0.29	1.7	0.19
		CT	143 (43.86)			
		TT	22 (6.74)			
rs1799930	590G>A	GG	124 (38.03)	0.39	1.017	0.313
		GA	147 (45.09)			
		AA	55 (16.87)			
rs1208	803A>G	AA	149 (45.70)	0.32	0.001	0.971
		AG	143 (43.86)			
		GG	34 (10.42)			
rs1799931	857G>A	GG	281 (86.19)	0.07	0.276	0.598
		GA	44 (13.49)			
		AA	1 (0.31)			

HWE, Hardy–Weinberg equilibrium; MAF, minor allele frequency; NAT2, N-acetyltransferase; SNP, single nucleotide polymorphism
Values given in parentheses indicate percentages

Results & Discussion

A total of 326 patients participated in the study. Their demographic and clinical details are given in Table I. Most patients had pulmonary TB and were being treated with Category I regimen. Patients with diabetes mellitus (those with known history of diabetes mellitus and or random glucose >200 mg/dl on the study day) constituted 14 per cent of the study population. The number of slow, intermediate and fast acetylators were 189 (58%), 114 (35%) and 23 (7%), respectively. The genotypes and specific alleles of the NAT2 gene are given in Table II. The distribution followed Hardy-Weinberg equilibrium. Slow acetylators accounted for 55 per cent in southwestern India (Mumbai), 53, 44 and 46 per cent in north India and 74 and 67.4 per cent in south India10-13. We observed 58 per cent of our study population to be slow acetylators, which comprised patients of south Indian origin (Tamil Nadu State).

The median two-hour INH concentrations in slow, intermediate and fast acetylators were 10.2, 8.1 and 4.1 µg/ml, respectively. The differences in INH concentrations among the three genotypes were significant (P<0.001). There existed a significant trend in the INH concentrations among the genotypes; the slow acetylators had the highest concentration, followed by the intermediate acetylators and fast acetylators had the lowest INH concentration (Figure). There were four HIV co-infected patients in this study group. Comparison of INH concentrations among the different NAT2 genotypes after excluding the four HIV seropositive patients also yielded similar results (Table III).

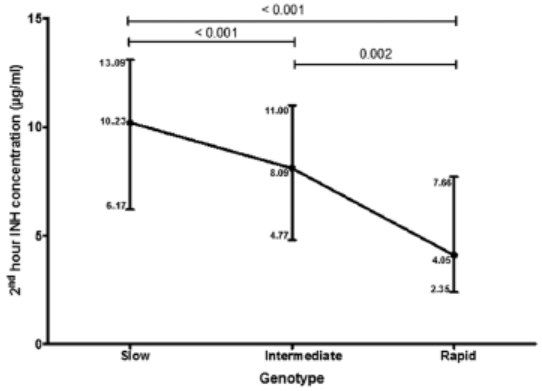


Figure. Median two-hour isoniazid concentrations in the different genotypes. The vertical bars denote inter-quartile range.

Table III. Isoniazid concentrations (median & inter-quartile range) among the three N-acetyltransferase genotypes (with inclusion & exclusion of HIV co-infected patients)

Variable	Slow acetylators	Intermediate acetylators	Rapid acetylators	*P*
Including HIV cases				
n	189	114	23	
Median (IQR) (µg/ml)	10.6 (6.8-13.2)	8.1 (4.6-11.0)	4.4 (2.4-7.3)	<0.001
Excluding HIV cases				
n	189	114	22	
Median (µg/ml) (IQR)	10.6 (6.8-13.3)	8.1 (4.6-11.0)	4.3 (2.3-6.4)	<0.001

IQR, inter-quartile range

Variations in the NAT2 gene among different populations could affect the metabolism and disposition of INH. Several studies to date have documented the influence of NAT2 genotypes on plasma concentrations of INH 2,5,14,15. Drug-induced hepatotoxicity as well as adverse drug events have also been reported16. Viewed in this context, significant variations in INH concentrations among different sets of patients (genotypes) is an important issue, since INH is an important drug in the treatment of TB and is widely used in India. Slow acetylators with higher INH concentrations are more susceptible for drug-induced hepatotoxicity. A metaanalysis by Wang et al17 from 14 studies, comprising 474 cases and 1446 controls showed a significant association between NAT2 slow acetylators and risk of anti-TB drug-induced liver toxicity.

Fast acetylators on the other hand are likely to benefit less from a prescribed drug dose. It has been suggested that rapid acetylators might require INH doses 1.5 times the currently recommended doses18. Comparison of response to TB treatment between slow and rapid acetylators of INH suggested an association between treatment response and rate of inactivation of INH; there was a difference in the rate of conversion to bacteriological negativity between slow and rapid inactivators19.

In this study, we estimated plasma INH concentrations at two hours after a supervised drug administration. It may not always be possible to collect multiple blood samples in the clinical/field setting for logistical and financial reasons; one is typically limited to one or two time points. When only one sample can be obtained, the two-hour post-dose concentrations are usually most informative20 as done in this study. In a separate study, INH peaked at two hours in more than 95 per cent of patients (unpublished findings). It has been reported that the target peak concentration of INH should be in the range of 3-6 µg/ml20. If this range was applied in the present study, 11, 14 and 26 per cent of slow, intermediate and fast acetylators, respectively had their two-hour INH concentrations less than 3 µg/ml. Although there appeared to be a trend in the proportion of patients with sub-therapeutic INH concentrations, the differences were not significant. The drug concentrations observed in our study was higher than that reported from an earlier study from Mumbai, which could be because of differences in the INH dose used in these studies, 600 mg in the present study and 300 mg in the Mumbai study5.

In conclusion, genotyping of TB patients for NAT2 gene polymorphism showed 58 per cent patients as slow acetylators and only seven per cent as rapid acetylators. Two-hour INH levels were significantly different among the different genotypes. Pharmacogenetic testing would help in reducing the occurrence of adverse drug effects and enhancing treatment success, and in the long run, could decrease the cost of health care.

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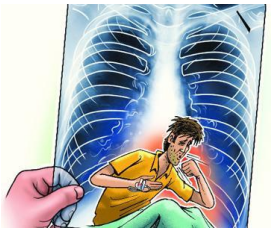
ICMR News

Diabetes drug to help treat TB



A drug widely used to treat type-2 diabetes, metformin, will now be prescribed with a cocktail of antibiotics for patients with tuberculosis as part of the clinical study in select cities by the end of the year, Indian Council of Medical Research(ICMR) director, Soumya Swaminathan has said.

Research suggests that metformin, which controls glucose levels, works as a protective agent against TB regardless of whether someone has diabetes or not. "The drug reduces inflammation, enhances immune response and the efficacy of conventional TB drugs. Some research has even shown that it improves control of TB infection and decreases disease severity. We want to see if this will work as adjunctive therapy for improving the effective treatment of TB in our population," she said.

Doctors say the relationship between TB and diabetes isn't new. As of now, patients testing positive for diabetes at government facilities are referred to undergo examination for TB. TB patients are also asked to check their blood glucose levels. In 2016, a guideline was framed by the central TB division after studies showed people with diabetes had 2-3 times higher risk of contracting TB. TB patients are also asked to check their blood glucose levels.

A study by Dr Vijay Viswanathan, chief diabetologist at Chennai based M V Hospital for Diabetes, and University of Massachusetts Medical School found that 54.1% of the 209 patients surveyed with pulmonary tuberculosis were diabetic, while 21% were pre-diabetic. "According to data, every fourth person has latent TB, which surfaces when the immune system is weak," said Dr Viswanathan. "Diabetes increases the risk of progression to active TB disease in people infected with Mycobacterium tuberculosis, the bacteria that causes TB. Conversely, TB has an effect on diabetes. It can not only worsen blood sugar control but also complicate clinical management of diabetes. The TB-diabetes combination is as bad as TB and HIV," he said.

Now, scientists say, adding metformin, even if the patient's sugar levels are normal, may not just prevent or delay diabetes, but also improve outcomes of TB treatment. So, a select group of people will receive the drug during the five-day antibiotics treatment. Last year, the World Health Organization increased its estimate of the number of new TB patients in India to 2.8 million in 2015 compared to 2.2 million in 2014. India, now, is home to more than a quarter of the global TB population.

A bacterial disease commonly affecting the lungs, TB can be cured using a cocktail of antibiotics for six months. These drugs are available for free in India which, however, hasn't been able to drastically bring down infection rates due to lack of awareness and access to treatment.

The Indian Revised National Tuberculosis Control Programme uses thrice-weekly treatment with standard drug doses. Recently, scientists trying to find out reasons for poor outcomes studied 1,912 adult TB patients receiving anti-TB treatment in Chennai and found the concentration of rifampicin, isoniazid and pyrazinamide in the blood inadequate in a majority of the population. Rifampicin was inadequate in more than 90% of the population. "We have now increased the treatment to five days a week. We are hoping it will make treatment effective and reduce risks of drug resistance. It has rolled out in five states. By the end of the year, it will be the standard for people across the country," Dr Swaminathan said.

(**Pushpa Narayan**)
TNN | Mar 13, 2017, 09.30 AM IST

Gender-sensitive TB measures needed

To mark International Women's Day and the upcoming World Tuberculosis Day, REACH (Resource Group for Education and Advocacy for Community Health) and the U.S. Agency for International Development (USAID) organised a discussion here on the urgency to integrate gender in India's tuberculosis (TB) programmes on Friday. The meeting was attended by experts on TB and gender issues, government representatives, civil society organisations, and survivors.

Dr. Soumya Swaminathan, Director-General (ICMR) and Secretary (Department of Health Research, Government of India), said, "Despite there being plenty of anecdotal evidence, we lack hard data. This leads to the creation of myths. In order to address issues like stigma, we need to make an effort to carry out better research."

Need to address stigma

According to a recent WHO report, TB affects an estimated three million women every year and remains a leading cause of death among adult women globally. Despite the severity of the issue, attention to the gender-specific aspects of the disease is still lacking. Issues such as stigma and poverty are heightened for women with TB as they are often abandoned by families.

"It is essential to look at TB as social suffering and not just a clinical problem. The disease impacts your roles as a worker, mother and wife. Even if women are biologically less susceptible to TB, socially, their burden is greater than that of men," said Professor Rama Baru, Centre of Social Medicine and Community Health, Jawaharlal Nehru University.

'Multi-faceted approach'

Xerses Sidhwa, Director (Health Office, USAID-India), said, "We must employ a multi-faceted approach for TB that puts women and girls at the centre and engages their families, communities, and governments."

"This meeting marks the first in a series of steps to draw attention to gender integration as we advocate effective and evidence-based policies, which will help achieve the collective goal of ending TB in India by 2025," said Dr. Nalini Krishnan, REACH Director.

The event also saw the launch of Nine Lives, a book by Chapal Mehra and Zarah Udwadia that chronicles the journey of nine women who survived TB.

THE HINDU, New Delhi, March 11, 2017 01:08 IST

ICMR to map tribes' genetic code for TB proclivity

Indian Council of Medical Research (ICMR) will conduct a research to find out some tribes in Madhya Pradesh are genetically predisposed to tuberculosis (TB). The ICMR's state-of-art diagnostics van will go to tribal areas and a team from the council and MP department of health and family welfare will try to find out answer for the same.

Sample this: one study estimated that prevalence of TB in Saharia tribe of MP is 2,156 per lakh in males. It is 10 times higher compared with TB prevalence in Baiga tribe. A 2008 study of Bharia tribe placed its TB incidence at 432 per lakh. Experts do point out economic situation could be a factor in case of Saharia tribe. Prevalence of TB in MP was 133 per lakh in 2015. It is expected to reach 145 per lakh for 2016.

Without concrete studies, the government intervention has had a marginal effect in control of TB among affected tribes. As per an ICMR research paper, there is no nationwide TB burden estimates available for tribal population. One of the most comprehensive data estimates by National Sample Survey for TB carried out between 1955 and 1958 did not include tribal groups.

"The focus of programme is on detection and cure of unreached. The ICMR will carry out research on genetic predisposition in tribal areas in the research," said Union government's department of health research (DHR) joint secretary and ICMR director Dr Soumya Swaminathan.

There are no studies that clearly establish link of TB with genetics. Some individuals have a genetic predisposition to TB. However, TB is multi-factorial and linked with environmental factors, poverty and similar factors, she clarified.

Equipped with sputum microscope and X-ray and a doctor, an ICMR van will roll out in four districts of MP. The inauguration is slated for January 22 at Kanha in the presence

of Union minister of state for health and family welfare Faggan Singh Kulaste. Eight vans with ICMR researchers will focus on Alirajpur, Barwani, Jhabua and Dindori districts.

In MP, an active case finding drive would take place from January 17, said state TB officer Dr Atul Kharate. The 'reach to unreached' campaign will be held in Indore, Hoshangabad and Mandla. In February, all eight districts of Gwalior division will be targeted to improve detection of TB.

Experts indicate there is great heterogeneity (diversity) across different tribal groups, which includes a sub-category of particularly vulnerable tribes known as primitive tribes that will be studied. Tribals face a number of health risks, including infant and maternal mortality, malnutrition, anaemia and malaria.

TNN | Jan 17, 2017, 09.34 AM IST

Experts Speak On Patna Teen Girl's Fight For TB Drug

New Delhi: Eighteen-year-old girl is fighting a battle against Tuberculosis in Patna. Her father, Kaushal Kishore Tripathi, is doing the rounds of the court, fighting to get her daughter access to a medicine that could potentially save her life.

The teenager developed TB symptoms in 2011 and six years hence, she is now suffering from extremely drug-resistant tuberculosis. As she has failed to respond to traditional antibiotic drugs, a new drug named 'Bedaquiline' is the only hope for her.

Last year, under the Conditional Access Programme, Bedaquiline, an anti-TB drug for Drug Resistant TB, was made available only in six centres across India. These centres are Delhi, Mumbai, Chennai, Guwahati and Ahmedabad.

The legal fight is to get the government make this drug available in Patna as well, where the condition of the teenager, her father said, "is deteriorating by the day."

According to the experts, the government is being cautious. Dr Soumya Swaminathan, Director of Indian Council of Medical Research (ICMR) said, "Bedaquiline is a new drug that we developed after five decades. It does have a significant amount of toxicity, especially in people who take drugs for arrhythmia." She added that because of its side effects, the government wants patients to be close to a hospital so that they can be monitored.

However, global expert Dr Lucica Ditiu, Executive Director of the Stop TB Partnership, said the drug should be rolled out widely and not in a selective process. Speaking to NDTV she said, "With the highest TB burden in the world, India should use the tool it has. If we want to end TB, introducing Bedaquiline in only some parts of the country is a bad approach."

The teenager, who was once an enthusiastic student, now weighs only 24 kilograms. Her father said that she is between a rock and a hard place and this medicine is her only chance. "We are willing to take this chance, even if it means 5 per cent survival chances," he said.

Dr Swaminathan said, "We have experienced how Bedaquiline works and are fairly encouraged by the results seen in over 200 patients. Hence, the government hopes to expand this programme."

Some experts, however, remain sceptical. Dr Madhukar Pai, Associate Director of McGill International TB Centre, said, "Besides providing TB drugs, India needs to do much more to improve diagnosis. India is still reliant on sputum microscopy, which misses detection of TB, and cannot detect drug resistance, while other countries are making great progress in switching to rapid molecular diagnostics"

Medical experts and activists also worry about TB funding in India. With the overall low spend on health, they feel that India's TB control programme is under-funded. According to the activists, funding levels need to match the scale of India's TB epidemic. They say that it's especially important because India has set the goal to end TB by 2025, brought forward from the previous goal of 2030.

The human and economic cost of not simplifying the sourcing of TB drugs is quite high and is evident in Mr Tripathi's case, who continues to take a pay cut to be in Delhi for the court proceedings, while his daughter hopes she doesn't run out of time.

(Snigdha Basu)

NDTV EveryLifeCounts News, New Delhi, January 17, 2017

Empower girls, socialise boys for a healthier tomorrow: ICMR chief

The Director General of ICMR, Soumya Swaminathan, is only the second woman Director General of the medical research organisation in over 100 years of its history, which can be

traced back to 1911 when it was called the Indian Research Fund Association. A paediatrician by qualification, 57-year-old Swaminathan believes that a woman in the top job brings a little something extra to the organisation.

"I think a woman does tend to see things from a slightly different point-of-view. I think it is a social thing. We are trained to be a little more sensitive about various people and their needs," she says.

She has started galvanising a new survey on nutrition to gather more comprehensive data. This appears to be an example of what she describes as an asset of female leadership – the desire to approach a subject with a broader perspective. Known for her life-long work on HIV and tuberculosis, Swaminathan is concerned about the skewed way in which gender equality is being perceived, especially because of the health and social implications of the same.

"I remember in the late 1990s, when I started working on HIV, there were so many women who were thrown out their house once their husbands contracted AIDS and died," she says.

While attitude towards HIV has taken a turn for the better, the issue of discrimination continues to exist and has repercussions for the health of the society, she says.
"I think our biggest problem is that we are not socializing our girls and boys, especially the boys I think. So, when they grow up they don't have that appreciation, understanding and respect. We need much more open discussions.

"We tend to focus on girls empowerment and women's rights. But we forget the boys who need a lot of attention at that stage and age.

"If no one is ever going to discuss any of these things with them, they are going to grow up with peculiar ideas," she says.

Hindu Business Line-08-Mar-2017

After drug Bedaquiline, TB treatment set to get boost with launch of Delamanid

Delamanid, one of the most sought after drugs for tuberculosis treatment, is set to roll out in over four months in India in a controlled manner to treat extremely resistant cases of the infectious disease. According to Indian Council of Medical Research (ICMR), the drug manufacturer Otsuka Pharmaceutical has approached the Drug Controller General of India for approval. "The drug should be made available in three or four months. But its use will be controlled," said Dr Saumya Swaminathan, director ICMR.

In 2016, the Ministry of Health and Family Welfare rolled out Bedaquiline drug for treatment of drug resistant TB for 600 patients across India. It has been made available in five cities– Delhi, Mumbai, Chennai, Guwahati and Ahmedabad– since February 2016 but only over 200 patients have been put on treatment.

In Mumbai, Hinduja Hospital has already procured Delamanid on a case-by-case basis to treat patients that have stopped responding to most of first and second line drugs.

With risk of bacterial resistance to this new class of drug, the government is cautious against rolling it out for every TB patient. Like Bedaquiline, Delamanid's treatment will be limited to few cities and certain category of patients. Patients with heart ailments, minors and those who are sensitive to first and second line of drugs will not be enrolled.

India accounted for 2.8 million new TB cases in 2015, an increase from 2.2 million in 2014. Every year over 99,000 new drug resistant patients are diagnosed. According to WHO, drug resistant cases are escalating demanding long treatment duration and chances of higher drop outs.

ICMR is also going to research on Bedaquiline resistance in Indian population. A national drug resistance survey is underway to assess 13 drugs used under government-run Revised National Tuberculosis Control Programme. About 5,000 patients who are undergoing treatment at public hospitals will be part of the survey.

"Clinical trials are also underway to reduce treatment duration of drug resistant TB from two years to six months," Swaminathan said.

The Indian Express-06-Mar-2017

Chennai to be tuberculosis free by decade-end: Health officials

Health authorities will soon put on riot gear to bring down the incidence of tuberculosis and make the city free of the disease by end of the decade, officials announced on Monday.

Officials of the state health department, Indian Council of Medical Research (ICMR), WHO and NGOs met at the state secretariat to finalize plans to detect cases and initiate treatment at an early stage. "We are planning to have mobile vans that will do chest x-rays, collect specimens and give results the same day. The local health authorities will ensure these patients get treated for the disease," said ICMR director Dr Soumya Swaminathan. Voluntary organisations will engage with private practitioners to ensure they notify all TB cases to the government. They will also ensure patients in the private sector don't drop out of treatment midway, increasing risk of drug resistance.

In India, with a quarter of the world's TB cases and deaths, the deaths in 2015 soared to 480,000 from 220,000 in 2014. In Chennai, an estimated 203 people out of every 100,000 have the disease. "We usually have about 17,000 cases in Chennai. Of these, only 9,000 cases are notified to the government...," said health secretary J Radhakrishnan.

After the Centre declared TB a notifiable disease in 2012, a study in 2016 showed seven of 10 private doctors in Chennai kept their patient's TB status secret. They are required to report it to the corporation health department. Of 190 private practitioners surveyed by the National Institute for Research in Tuberculosis, a mere 33% reported their patients had TB. More than 40% were sent to government hospitals for treatment.

The disease is transmitted through air and usually affects the lungs, but can also affect other parts, including spine, brain and kidneys.

Patients are given first-line drugs for up to nine months. Although treatment is free in most government hospitals, many skip it leading to resistance. Statistics show that at least 1 in 25 TB patients has XDR-TB, a short form of extremely drug resistant tuberculosis. They are not cured even with the second line of drugs and about one in five patients has a threat of this treatment failing.

Times of India-27-Feb-2017

REACH, USAID call for integrating gender in Indian TB programmes

To mark this month's celebration of International Women's Day and the upcoming World TB Day, REACH (Resource Group for Education and Advocacy for Community Health) and the U.S. Agency for International Development (USAID) organized a TB centrestage discussion here on the urgency to integrate gender in Indias tuberculosis (TB) programs.

The meeting convened experts from TB and gender sectors, government representatives, civil society organizations, and TB survivors who argued for more gender-sensitive programming in India.

Dr. Soumya Swaminathan, Director-General, ICMR and Secretary, Department of Health Research, Government of India, said, 'Despite there being plenty of anecdotal evidence, we have a lack of hard data, leading to a lot of myths and misconceptions. In order to address issues such as stigma, we need to first make an effort to carry out better research. I hope that we are able to identify and highlight important research questions through gatherings like these.'

According to a recent World Health Organization report, TB affects an estimated three million women every year and remains a leading cause of death among adult women globally. Despite the severity of this issue, attention to the genderspecific aspects of the disease is still lacking. Issues such as stigma and poverty are heightened for women TB patients, who are often abandoned by their families or blamed for endangering the health of the family.

'It is essential to look at TB as social suffering. It is not just a clinical problem. The disease impacts your roles as a worker, mother and wife, which go through periods of great disruption. So even if biologically, women are less susceptible to TB, socially, their burden is much greater than that of men,' said Professor Rama Baru, Centre of Social Medicine and Community Health, Jawaharlal Nehru University.

Highlighting these socio-economic aspects and inequities of gender and TB, Xerses Sidhwa, Director, Health Office, USAID/India, said, 'As we work to address these disparities, we must employ a multi-faceted approach for TB that puts women and girls at the center and engages their families, communities, and governments in innovative programs that strengthen the enabling environment and transforms systems.'

Dr Sundari Mase from WHO described the epidemiology of TB in men and women, globally and in India, stressing upon the impact of TB on maternal health. Ms Blessina Kumar from the Global Coalition of TB Activists spoke on the need for a gender-sensitive assessment of the TB scenario in India.

Moderating the discussion, Dr Anuradha Rajivan, Former ADB Advisor, Strategy and Policy Department, said, "Social conditioning prevents access to coming out and speaking about TB. So, a gender-sensitive approach, required in all walks of life, becomes acutely critical in the context of TB."

"This meeting marks the first in a series of steps for the coming year to draw attention to gender integration as we continue to advocate for effective and evidence-based policies that will help reach the collective goal of ending TB in India by 2025," said Dr. Nalini Krishnan, Director, REACH.

The Tuberculosis Call to Action project, implemented by REACH and supported by USAID, advocates for gender-sensitive policies at the national and state levels in Assam, Bihar, Jharkhand, Odisha, Rajasthan, and Uttar Pradesh.

Medical Dialogues-11-Mar-2017

India TB Caucus launched to accelerate elimination of tuberculosis

Over 30 members of Lok Sabha, Rajya Sabha and Legislative Assembly came together for the launch of the India TB Caucus, a unique network of elected representatives committed to Ending TB in India. Led by its members, for its members, the Caucus will work collectively and individually to End TB in India. The India TB Caucus will engage with political networks, the Government and civil society groups to raise the profile of the disease and confront the stigma and social isolation associated with it.

The meeting was jointly organized by International Union Against TB and Lung Disease (The Union) and supported by the United States Agency for International Development (USAID), The Global TB Caucus, Indian Association of Parliamentarians for Population and Development (IAPPD), Center for Legislative Research and Advocacy (CLRA), Global Coalition Against TB (GCAT), Global Health Strategies (GHS), REACH and Aequitas.

Attending the launch were Chief Guest, Prof. P J Kurien, Deputy Chairman - Rajya Sabha; Senator Lisa Singh, Member of Parliament (MP), Australia; Dr. Nguyen Van Tien, MP, Vietnam; Viplove Thakur, MP; Dr. Kirit P Solanki, MP, Lok Sabha; Dr. BN Goud, MP, Lok Sabha; Majeed Memon, MP, Rajya Sabha; Avinash Khanna, Ex-MP, Rajya Sabha along with Dr. Soumya Swaminathan, Director General, ICMR; AK Jha, Economics Advisor, MoHFW; Dalbir Singh, President, GCAT; Sarah Kirk, Regional Director, Asia Pacific TB Caucus.

Goals of India TB Caucus to advocate for increased resources for TB prevention & care in India. Raise the issue of TB within their own political networks and ensure it remains among urgent political priorities. Sensitize the family and communities of those affected by TB, address the stigma and ensure accessibility to TB diagnosis and treatment at primary stage to every patient. The members signed the India TB Caucus Declaration, pledging support for accelerating progress towards a TB-Free India.

Prof. P J Kurien, Deputy Chairman - Rajya Sabha agreed to be a patron of the India TB Caucus and announced the name of four co-chairs Viplove Thakur; Dr. Kirit P Solanki; Dr. BN Goud; Majeed Memon.

Welcoming the guests to the launch of India TB Caucus, Viplove Thakur, MP, Rajya Sabha said, "Today, we are here to talk about an issue that needs urgent attention, especially from all the political representatives. It is very unfortunate that TB continues to be one of India's greatest public health challenges. While Government of India is making efforts to address TB, all of us have a role to play. As we form the Cacus today, we commit to work collectively and individually in our capacity to end TB in India."

Majeed Memon, MP, Rajya Sabha, co-chair India TB Caucus, reiterated that given India's high burden of TB, there is need for accelerated efforts make India TB-Free.

Dr. Gaoud, MP, Lok Sabha as co - chair committed all his efforts to end TB and said "TB afffects most people and gets least attention as compared to other problems that affect lesser number of people".

Dr. Kirit P Solanki, MP, Lok Sabha emphasized on the need for more funds and dedicated support sytem for TB patients and their families. He called upon Parliamentarians to leverage their efforts and goodwill for the cause.

Senator Lisa Singh, MP, Australia, stated, "TB is the world's biggest infectious killer and 1.8 million people died of this disease in 2015. TB has killed as many people every year as HIV & Malaria combined, yet it is a neglected disease. It is heartening to see how the Indian Government is pulling out all the stops to put an end to the TB epidemic in the country."

Mark White, USAID/India Mission Director, stated: "We must all work together to successfully turn the tide on TB. The TB Caucus will help to galvanize support for political representatives across the country to champion a TB-free India." With support from USAID, The Union played a vital role in the establishment of the Global TB Caucus and will serve as the secretariat for the India TB Caucus. Kavita Ayyagari, Project Director, Challenge TB, The Union commented, "Parliamentarians have a wide sphere of influence, and The Union, in association with partners, is helping to increase awareness and commitments to End TB in India."

The India TB Caucus is part of the Global TB Caucus, which is a unique network of political representatives with support in more than 130 countries.

pharmabiz.com-10-Mar-2017

Draft TB control plan targets fewer cases, seeks 4 times more funding

A radical draft National Strategic Plan (NSP) for Elimination of TB that proposes to bring down new infections by nearly 80 per cent over the next eight years says India must expand the programme to the private sector, offer direct benefits transfer to patients, improve surveillance and monitoring of patients, and increase funding for the existing TB control programme.

The country's ongoing TB programme is inadequate, the NSP says, seeking five times the funding allocated to TB control over the last three years put together.

"If the new NSP can be fully funded, and fully implemented, it could be a game-changer for India," said Madhukar Pai, Associate Director of the McGill International TB Centre at

McGill University in Canada. "Even if elimination by 2025 is unlikely, the country will at least get closer to the End TB Strategy timeline of 2035."

The WHO's End TB strategy targets reducing new cases to under 10 persons per 100,000 a year.

At 2.8 million, India had 27 per cent of the world's new TB cases in 2015. Tuberculosis is treatable, but the WHO estimates TB treatment does not reach 41 per cent of patients.

The proposed NSP puts forth an ambitious target — reducing the incidence of TB from 217 new cases per 100,000 people in 2015 to 44 cases, a 79.7 per cent reduction over a decade. In comparison, TB incidence in India reduced 22 per cent in the decade to 2015.

India's gains in TB treatment are by no means negligible — from 1997 to 2016, its TB control programme saved 7.75 million lives, directly and indirectly, through reduced transmission of TB, according to a February 2017 study.

However, "the rate of decline is too slow to meet the 2020 Sustainable Development Goals and 2035 End TB targets," the NSP says, adding that prior efforts cannot be continued and a new strategy is needed.

The NSP proposes a budget of Rs 16,649 crores for the three-year period from 2017 to 2020, five times what the TB programme received in the last three years put together — Rs 3,323 crores.

"If resources do not follow the NSP, then I fear this will be yet another wasted opportunity to make real progress," Pai said.

In the past, the central TB programme, known as the Revised National Tuberculosis Control Programme (RNTCP) — an overhaul of the failed National Tuberculosis Programme which began in 1962 — has received less money than requested — and needed. If funding does not increase, the national TB control programme would have to reduce the number and/or scale of the programmes it has proposed in the NSP.

Further, even though the NSP targets an 80 per cent reduction in new TB cases by 2025, it says early modelling exercises show that "increased coverage of care both in public and private sector will result in a decline by roughly half the TB incidence in the country over a decade", which means the incidence would reduce to roughly 109 cases per 100,000 people by 2025.

The challenge: Barring some pilot projects over the last two years, RNTCP has solely focused on patients who come to the government system, even though the private sector in India treats an estimated 2.2 million TB cases.

"If we are talking about elimination, we can't only talk about the public sector. Everyone who might have TB should be included," especially as the private sector engages with half, if not more of TB patients, said Soumya Swaminathan, Director General of the Indian Council for Medical Research (ICMR).

Involving the private sector can help the government keep track of TB cases, while also ensuring patients get the correct treatment. For instance, in 2015, just three districts — Patna, Mumbai and Mehsana — which implemented a pilot programme to involve the private sector, recorded 18 per cent of all TB registrations from the private sector, according to the NSP.

"The approach will be to first capture all TB patients by attracting TB notification from private providers and then work to improve the quality of care," the NSP says.

Until 2012, when the government made it mandatory for private doctors to report cases to the government, no government or private agency kept a nationwide track of how many patients were diagnosed or treated successfully in the private sector. Since 2012, more and more TB cases in the private sector have been registered — known as notifications — with the government over the last two years, with 19 per cent of all registered TB cases coming from the private sector in 2017.

The NSP proposes incentives to private-sector healthcare providers: Rs 250 on registering a TB case, Rs 250 on completion of every month of treatment, and Rs 500 on completion of the entire course of TB treatment. The NSP also proposes an incentive of Rs 2,750 to the private health provider for notifying and managing a drug-resistant patient, and Rs 6,750 for completion of the 24-month treatment.

Drug-resistant TB, which can be of several different types, is a more potent form of the disease in which the TB bacteria become resistant to one or more of the known TB medicines. Patients are deemed rifampicin-resistant when they are resistant to the main anti-TB drug, and multi-drug resistant when they are resistant to the strongest TB medicines, rifampicin and isoniazid, in addition to any others.

Even after these incentives, "the cost of involving the private sector is almost the same or marginally higher than the cost in the public sector", says the draft NSP.

The challenge: India needs "an army" of people to engage with the private sector, trained to track, monitor and work with a variety of healthcare providers ranging from big hospitals to AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha) practitioners, Swaminathan said. This would require additional training and a larger workforce because health workers today are not equipped to work outside of the public sector, she explained.

Only 295 of the 764 positions of coordinator for private sector engagement have been filled, the draft NSP says, adding that not only do coordinators lack capacity, limited efforts have been made to build their capacity.

The challenge: In 2015, India had 130,000 estimated cases of drug-resistant TB (including multi-drug resistant), according to the WHO. About 2.5 per cent of new TB cases were rifampicin-resistant, or multi-drug resistant. Further, 16 per cent of all previously treated TB cases were multi-drug resistant. Treatment of drug-resistant TB takes longer and is more expensive than treating regular TB.

"Within the public sector, there is heavy dependence on an insensitive diagnostic test which cannot diagnose drug resistance," the draft NSP notes.

The solution: The NSP proposes scaling of rapid molecular tests that diagnose drug resistance better. It says all patients diagnosed with TB should be tested for resistance to rifampicin. In 2016, 29.7 per cent of those registered with the government — 520,000 patients — were tested for drug resistance, according to the NSP.

The NSP also suggests tracing all people who have been in contact with a drug-resistant patient and testing them for drug-resistant TB.

Further, because many don't seek treatment for TB, it is "highly imperative to shift from the passive to active" in looking for people infected with TB, the NSP says. It proposes actively sending healthcare workers for community screening of vulnerable populations such as those living in slums, prisons, old-age homes, refugee camps and tribal areas, as well as construction workers, the homeless, street children and mine workers.

The challenge: Out of those TB patients who reached the government system – 72 per cent of India's total TB cases in 2013 — more than half a million patients were either not diagnosed correctly, or diagnosed but not registered for treatment.

Further, not everyone who registers for TB treatment is cured. In 2014, for instance, 37 per cent of those who were re-treated — after they defaulted on treatment or did not get cured with the previous treatment regime — remained uncured, according to data from the 2016 annual TB report.

Those who are untreated or partially treated can spread the disease to others, and potentially increase drug-resistant forms of the disease.

As such there is little information on long-term health outcomes, the NSP says, which means the TB programme would be unaware if a patient who successfully completed treatment relapsed after six months.

Patients might not complete treatment because of high economic and health costs to the patient and the family as the disease and the side-effects of treatment might make it difficult for patients to work. Or, patients might stop treatment because they start feeling better and do not understand the need to complete the treatment regime.

The solution: By 2020, the NSP proposes to ensure TB patients and their families incur no economic costs, whether of treating the disease or taking care of a patient. For this, the program proposes a Rs 2,000 direct benefit transfer for patients' nutritional support during the course of treatment.

The programme will also provide a monthly support of Rs 500 to incentivise treatment completion.

The program suggests collecting patients' Aadhaar numbers, a unique government-issued identification number, and phone numbers to track their treatment status. It also suggests scaling up of programmes that use call centres for user-friendly private reporting and patient monitoring.

Further, the NSP proposes implementing a WHO-recommended 9-11 month treatment regime for multidrug-resistant TB, shorter than the current 24-27 month treatment that is difficult to complete. The shorter treatment will be provided to all TB patients resistant to the main anti-TB drug, rifampicin, by the end of 2017, the NSP said.

To reach the goal of elimination, "we will have to prevent people from getting tuberculosis 40 years from now", Swaminathan said. This is possible with a strategy that not only treats active TB cases but develops new vaccines for the disease or preventive medicines, for which, she said, "research and innovation is critical".

CanIndia News-23-Mar-2017

India may get new anti-TB drug next month: DG ICMR

Exactly 65 years ago (in 1951), the Lucknow-based Central Drug Research Institute (a laboratory under the Council of Scientific and Industrial Research) made its tryst with destiny, and that too in the presence of Jawaharlal Nehru - India's first PM, who also witnessed the inauguration at the historic Chhattar Manzil.

Sixty five years later, on Wednesday, the focus of attention was 'Recent Advances in treatment of Tuberculosis' in the 41st Sir Edward Mellanby Memorial Oration delivered by Dr Soumya Swaminathan, director general of ICMR and secretary department of health research, Union ministry of health & family welfare.

Speaking on the occasion, Swaminathan said, "The phase-3 clinical trials (on humans) of drug Bedaquilin has been successfully carried out in Africa, and the drug is likely to come to India next month." She further stated that the drug targets new protein of bacteria (causing TB), and is effective in the case of Multi-Drug Resistant TB. Another drug called Linezolid, which is in the final stages of human trials. "The WHO attempts to make the world TB-free by 2035, while for India, it is 2050."

The ICMR DG also mentioned that the new drug has curing capacity of nearly 80%, while the existing drug has the curing capacity of 50%. "The new drug is being launched as a pilot project in five cities of Delhi, Mumbai, Chennai, Ahmedabad and Guwahati, as these cities have high load of tuberculosis."

She also claimed that she would enquire why the TB-diagnostic set developed by CDRI was not commercialised. "The main issue is that TB is getting reduced in India at a rather slow pace," Swaminathan said.

Throwing light on TB and its historical aspect, Swaminathan said, "In the last 200 years, almost 100 crore have died of tuberculosis. The oldest proof of TB could be dated back to the Egyptian mummies." She further stated that with the migration of the African people, TB also spread with them.

As of today, 9.6 million persons are developing TB every year, and 4.8 million get MDR (Multi-Drug Resistant) infection. In India, 2.1 million cases are reported, of which 7% are kids (under-10), and the mortality stands at .3 million.

Citing a survey done in Chennai in 2014, the speaker said that more men have been infected by TB than women. And, it is the men in the age group of 50-60 years, who are more susceptible. The survey also mentioned that 15 million children in India are exposed to TB, and 7.5 million get infected by a host of household factors. The factors are: under-nutrition, alcohol intake, smoking, indoor & outdoor pollution and occupational health hazard. The major challenges lie in the field of diagnosis. Another challenge lies in reducing the treatment window from 6 months to 1 month and then to 15 days.

"In coming days we have to face 10 major challenges in the health sector among them anaemia and malnutrition is on the top. We have to take special care towards diabetes," she said, and added that In India average age is also increasing so we have to focus on age related disorders also.

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SEMINARS/ SYMPOSIA/ CONFERENCES/ WORKSHOPS ETC SUPPORTED BY ICMR

S. No.	Title	Date/ Duration/ Place	Organisers
1.	104th Indian Science Congress	2017-01-03 5 Days, Tirupati	S.V. University, Tirupati
2.	International Conference on Health Ageing and Mental Health	2017-01-04 3 Days Kalamassery (Kerala)	Rajagiri College of Social Sciences, Kalamassery
3.	International Conference on Impact of Global Issues on Women and Children	2017-01-09 4 Days, Manipal	Manipal College of Nursing, Manipal University, Manipal
4.	44th National Conference of Indian Association of Preventive &Social Medicine 2017 (IAPSMCON 2017)	2017-01-10 3 Days Kolkata	Institute of Post Graduate Medical Education and Research and S.S.K.M. Hospital, Kolkata
5.	Conference on Healing and Dying With Dignity: Ethical Issues in Palliative Care, End-Of-Life Care and Euthanasia	2017-01-13 3 Days Mumbai	Forum For Medical Ethics Society, Mumbai
6.	Seminar on Recent Advances in Cancer Therapy and Molecular Targets	2017-01-14 2 Days Karjat, (Raigad)	Konkan Gyanpeeth Rahul Dharkar, College of Pharmacy &Research Institute, Karjat

7.	International Conference Cum Workshop on Advances in Enzymology: Implications in Health, Disease & Therapeutics	2017-01-15 5 Days Navi Mumbai	Advanced Centre For Treatment, Research & Education in Cancer (Actrec) Tata Memorial Centre, Kharghar
8.	National Symposium on Medical Image Acquisition, Processing & Analysis	2017-01-19 3 Days Solan	Jaypee University of Information Technology, Waknaghat Dumehar Bani
9.	Neurocon-2017 Int. Seminar on Growth, and Mortality of Neurons: From Traditional Medicine to Cutting Edge Technology	2017-01-19 4 Days Haldia	ICARE Institute of Medical Sciences & Research, Banbishnupur, Balughata,
10.	CME on Contemporary Practices in Surgery: Symposium on Thoracic Surgery 2017	2017-01-21 2 Days New Delhi	All India Institute of Medical Sciences, Ansari Nagar, New Delhi
11.	International Conference on Advances in Cellular, Genomic and Epigenomic Insight on Environmental Mutagenesis and Health	2017-01-27 3 Days, Manipal	Manipal University, Manipal
12.	25th Annual Conference of National Academy of Burns India (Nabicon 2017)	2017-02-03 3 Days New Delhi	Dr. RML Hospital, New Delhi
13.	Conference on Recent Advances in Paediatric Anesthesia	2017-02-04 1 Days Noida	Dept. of Peadiatric Trauma & Anaesthesiology, Noida
4.	Symposium on Changing Trends in Medical Biochemistry in The New Millennium	2017-02-04 1 Days Lucknow	King George's Medical University, Lucknow
15.	Bio Asia 2017 (Digital Health & Healthcare It, Healthcare Access Challenge Conference)	2017-02-06 3 Days Hyderabad	Federation of Asian Biotech Associations, Hyderabad
16.	Chennai Nanogathering: National Conference on Nanomaterials and Nanobiotechnology	2017-02-07 2 Days Chennai	University of Madras, Chennai
17.	International Conference on Reproductive Biology and Comparative Endocrinology	2017-02-09 3 Days Hyderabad	University of Hyderabad, Hyderabad
18.	International Conference on Mitochondria in Health and Disease	2017-02-10 2 Days New Delhi	Jawaharlal Nehru University, New Delhi
19.	International Conference on Updates in Cancer Prevention and Research	2017-02-14 2 Days Lucknow	Babasaheb Bhimrao Ambedkar Central University, Lucknow
20.	International Symoposium on Revolution of Laboratory Medicine in Modern Biology	2017-02-15 3 Days Mumbai	National Institute of Immunohaematology, Mumbai
21.	Immunocon 2016	2017-02-16 3 Days, Visakhapatnam	Gitam University, Visakhapatnam
22.	CME on Arthopod Borne Diseases & Conference on Zoonoses	2017-02-17 2 Days Ballari (Kar.)	VIMS, Ballari
23.	Seminar on Sensitization on Promotion of Occupational Unorganized Construction Sector	2017-02-18 2 Days, Balasore	Basti Area Development Council, Balasore
24.	Workshop on Occupational Health & Safety in Health	2017-02-20 1 Days Madikeri (Kar.)	Kodagu Institute of Medical Sciences, Madikeri

25.	Conference on Positive Attitude and Inclusive Space: Development of Persons With Disability (Divyang)	2017-02-21 1 Days Bhiwani (Har.)	Principal, Govt. College, Bhiwani
26.	Pre-Conference Workshop on Application of Public Health: Hands-On Training During 61st annual National Conference	2017-02-23 1 Days Jodhpur	All India Institute of Medical Sciences, Jodhpur
27.	Pre-Conference Workshop: on Rediscovering Effective Communication in Public Health Related Service, Teaching & Research	2017-02-23 1 Days Jodhpur	All India Institute of Medical Sciences, Jodhpur
28.	Pre-Conference Workshop on Hands on Training on Early Detection of Paediatric Hearing Loss During 61stannual National	2017-02-23 1 Days Jodhpur	All India Institute of Medical Sciences, Jodhpur
29.	Seminar Cum Workshop on Pharmacovigilance and Effective Drug Safety Reporting and Surveillance	2017-02-24 2 Days Bhopal	Sagar Institute of Research and Technology-Excellence Ayodhya By Pass Road, Bhopal
30.	International Conference on Advanced Information And	2017-02-24 2 Days Coimbatore	Karpagam College of Engineering, Coimbatore
31.	Workshop on Developing Protocol For Cochrane Systematic Professionals	2017-02-24 3 Days New Delhi	All India Institute of Medical Sciences, New Delhi
32.	National Conference on Library &Information Management in Digital Environment	2017-02-25 2 Days Ranchi	Jharkhand Information & Library Association, Ranchi
33.	Conference on Insights of Genetics in Molecular Medicine	2017-03-02 2 Days Coimbatore	Bharathiar University, Coimbatore
34.	Seminar on Evolving A Standardized Protocol For Management of Low Back Pain Through Pain Clinic in PGIMER,, Chandigarh	2017-03-02 3 Days Bengaluru	Indian Institute of Science, Sir C.V.Raman Avenue, Bengaluru
35.	International Conference on Science, Technology, Icstem'17	2017-03-03 2 Days Coimbatore	Institute of Technology, Kannampalyam
36.	National Symposium on Quantum Dots As Drugs Delivery Opportunities & Challenges	2017-03-04 1 Days Sagar	Adina Institute of Pharmaceutical Sciences, Sagar
37.	Conference on Childhood Blindness	2017-03-10 2 Days Purba Medinipur (W.B.)	Association of Community Ophthalmologists of India Tamluk
38.	Seminar on Diarrhoeal Disease Burden and Management: Special Reference to North Eastern India	2017-03-10 2 Days Tezpur	Tezpur University, Tezpur
39.	2nd International Conference on Futuristic Trends in Computational Analysis & Knowledge Management	2017-03-16 2 Days Noida	Amity University, Noida
40.	National Seminar on Identifying and Avoiding Publishing Lesson For Researchers	2017-03-18 1 Days Delhi	University of Delhi, Delhi
41.	Conference on Recent Advances in MRI and MRS	2017-03-21 3 Days New Delhi	All India Institute of Medical Sciences, New Delhi
42.	Seminar on Evolving A Standardized Protocol For Management of Low Back Pain Through Pain Clinic in PGIMER	2017-03-24 1 Days Chandigarh	PGIMER, Chandigarh

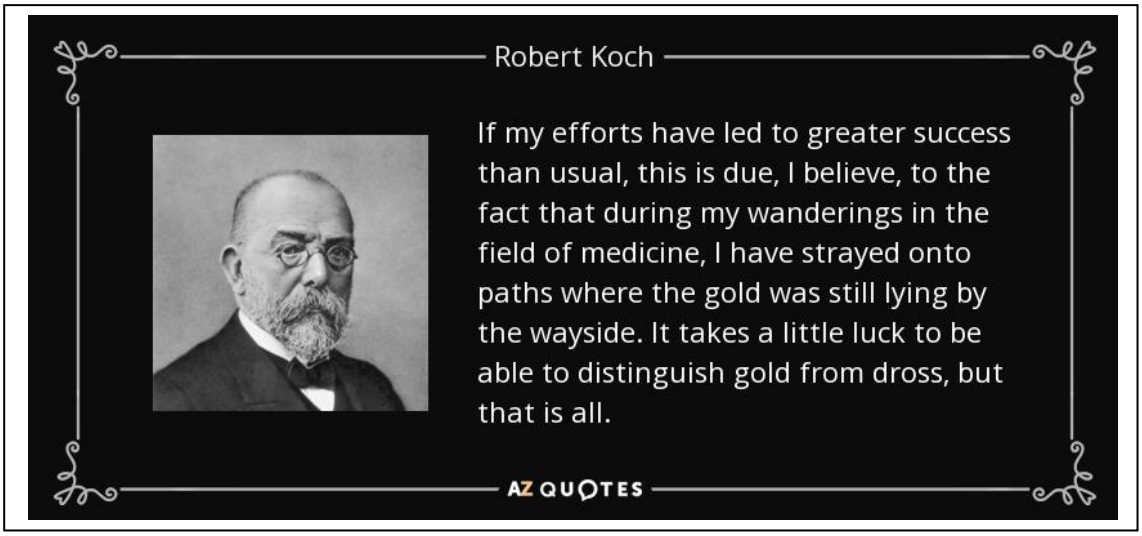
43.	International Symposium on Neurodegenerative Disorders- 2017 (Isnd-2017)	2017-03-29 2 Days, Bengaluru	National Institute of Mental Health and Neurosciences, Bengaluru
44.	National Seminar on Fostering Scientific Temper in Nurses Through Scientific Paper Writing and Publication Ethics	2017-03-31 2 Days Amritsar	Sri Guru Ram Dass Nursing Institute, Pandher

Various Technical Committees/Groups' Meetings

The following meeting of various technical committees/Groups of the Council were held in January-March 2017		
1	National guidelines for Stem Cell and Research	6/1/2017
2	Expert Group meeting for Nano-medicine	9/1/2017
3	Meeting of the Project Review Group on Socio-behavioural & Health systems research	10/1/2017
4	The meeting of working group on "THERAPEUTICS"	11-01-2017 to 12-01-2017
5	Meeting of Nodal centres on Antimicrobial Resistance	12/1/2017
6	Task force group meeting on "Intravenous Methylprednisolone (IVMP) versus IV Immunoglobulin (IVIg) in adults with Guillain-Barre Syndrome (GBS)- A parallel group randomized open label multicenter non-inferiority trial with blinded outcome assessment"	12/1/2017
7	ICMR task force project on "Effectiveness of a structured oral health programme and early childhood caries"- reg.	13-01-17
8	Expert group meeting on the areas of sleep disorders & diabetes	
9	A lecture on "Resilience building for success" by Dr. Rick levy	16-01-17
10	Project review committee meeting of human genetics	17-01-17
11	"Dissemination workshop (TN-STEMI)"	18-01-17
12	"Glucose sensing devices validation protocol meeting"	18-01-17
13	17th meeting of national apex committee for stem cell research and therapy (NAC-SCRT)	20-01-17
14	The meeting of India "TB consortium"	20-01-17
15	The expert group meeting review for the proposal entitled "A feasibility study for setting up registry for assessing the determinants of dialysis outcomes in India"	23-01-17
16	Administration-II meeting of bio-medical research board	25-01-17
17	Project review committee on "ENVIRONMENT"	25-01-17
18	Meeting of "Project Review Committee in the field of Ophthalmology"	27-01-17
19	Meeting of national task force project on prevalence & etiology of hearing impairment	27-01-17
20	Meeting of the high powered committee on "Global ENV, CHANGES AND HEALTH"	30-01-17
21	Meeting on Impact of Yoga on diabetes	30-01-17
22	The meeting to discuss "Progress towards containment of poliovirus type2 (Sabin vaccine and wild virus)"	2/2/2017

23	Taskforce meeting of Special Cell on Cancer Prevention	2/2/2017
24	Indian Council of Medical Research (ICMR) and Monash University, Australia, has signed a Memorandum of Understanding (MoU) to collaborate on the technology to combat dengue	7-Feb-17
25	A workshop on Protocol and Data Management	8-Feb-17
26	A Brainstorming meeting on objectives of Animal experiment	9-Feb-17
27	Review Committee meeting on Gastrointestinal Diseases	10-Feb-17
28	Review committee meeting on ICMR working system	16-Feb-17
29	Project Review committee meeting on Ear, Nose & Throat (ENT)	16-Feb-17
30	Child and adolescents Anemia: ICMR taskforce meeting to prepare a list for future Research	20-Feb-17
31	22nd The National Apex Committee for Stem Cell Research and Therapy (NAC-SCRT) Meeting	20-Feb-17
32	A Special Cell meeting to review annual /Final report of New Fellowship Schemes	22nd 02 2017
33	Review committee meeting on Acute Brain Research syndrome in Gorakhpur	23 02 2017
34	National taskforce meeting on Comprehensive monitoring system for Road Traffic Injuries	27-Feb-17
35	A review group meeting of special cell on cooperation between ICMR -Sweden Projects	27-Feb-17
36	Project Review committee meeting on Women Health	28-Feb-17
37	A review committee meeting to finalize the project on Rifabutin Inhalation to treat tuberculosis	28-Feb-17
38	Scientific Advisory Committee meeting on Indian Medicinal Plants	28-Feb-17
39	Personnel Section selection committee meeting	6/3/2017
40	The meeting to on TB Epidemiology and Implementation research with working group experts	6/3/2017
41	"Glucose sensing devices validation protocol"	6/3/2017
42	Expert group meeting centre for advance research on geriatric mental health	6/3/2017
43	Selection committee meeting Sc-C (TSS)	7/3/2017
44	Expert group meeting task force on health	7/3/2017
45	4th meeting of performance evaluation committee for the functioning	7/3/2017
46	Meeting on "Screening committee meeting of task force on venom"	8/3/2017
47	Selection committee meeting Sc-C (TSS)	8/3/2017
48	Indian council of medical research socio-Behavioral & health systems research (SBHSR) Division	9/3/2017
49	"SPEAK India VL consortium steering committee meeting at ICMR"	10/3/2017
50	Meeting of the ICMR experts committee for discussion with the firm's for various related logistic issues	10/3/2017
51	Project review committee meeting for cellular and molecular biology and genomics	14-03-17
52	Technical group meeting on "Typhoid surveillance in india"	14-03-17
53	Meeting of discuss public private partnership policy and guidelines	14-03-17
54	The meeting on "To develop R&D blueprint for action to prevent epidemics in response to WHO guidance document"	15-03-17
55	Fellowship experts group meeting on Nano medicine	15-03-17
56	Project review group (PRG) meeting on "Basic reproductive biology, infertility, ART and expending contraceptive choices"	15-03-17
57	Expert group meeting on "Financial assistance to MD/MS/DM/MCH/MDS Thesis"	16-03-17

58	3rd Meeting of performance evaluation committee for the functioning ICMR	16-03-17
59	Meeting of the ICMR technical committee for the procurement of the scientific equipments at its institute's/Center's	17-03-17
60	The meeting to "Review & discuss issue of drug resistance in leprosy"	17-03-17
61	Post doctoral fellowship (PDF) the selection committee meeting for the post doctoral fellowship (PDF) 15th batch	21-03-17
62	Post doctoral fellowship (PDF) the review of post doctoral fellowship (PDF) 11th, 12th & 13th batch	22-03-17
63	Socio-Behavioural & Health Systems Research (SBHSR) Division	22-03-17
64	"Expert review group meeting for evaluation of public health pesticides"	27-03-17



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